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ABSTRACT

This data book is an information source for a specific state park. However, it contains principles of organization useful in other areas. The data book describes the topography and ecology of the field trip site in a first section. A second section covers the cultural history of aboriginal people who inhabited the area before white settlement. (RE)

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POINT MUGU-LEO CARRILLO TEACHER'S GUIDE

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PART III

The Data Book

Land, Life, and Chumash Culture

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POINT MUGU-LEO CARRILLO

TEACHER'S GUIDE

Part III

The Data Book

Land, Life, and Chumash Culture

By

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March 1980

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To the teacher:

This data book is your information source for the area you will be visiting. First, read it from beginning to end as a guide for teaching your preparatory unit lessons. Then refer to it from time to time for specific data by consulting the subheadings or the topical words in the margins.

To the student:

This book was designed for you. It tells you about the units in the State Park System in the Point Mugu-Leo Carrillo Area and the Chumash Indians who use to live there. You can read it like a book, or just look up facts about the area or the Indians.

If you are looking for facts, first decide what you want to know. Is it something about the land or the living things on a particular part of the land? Or is it something about the Chumash Indians? Look in the Table of Contents for the section and subheading you believe might have the answer. Turn to that subheading and then begin looking in the page margins for a fact that interests you.

Leo Carrillo State Beach

Point Mugu State Park

LAND AND LIFE

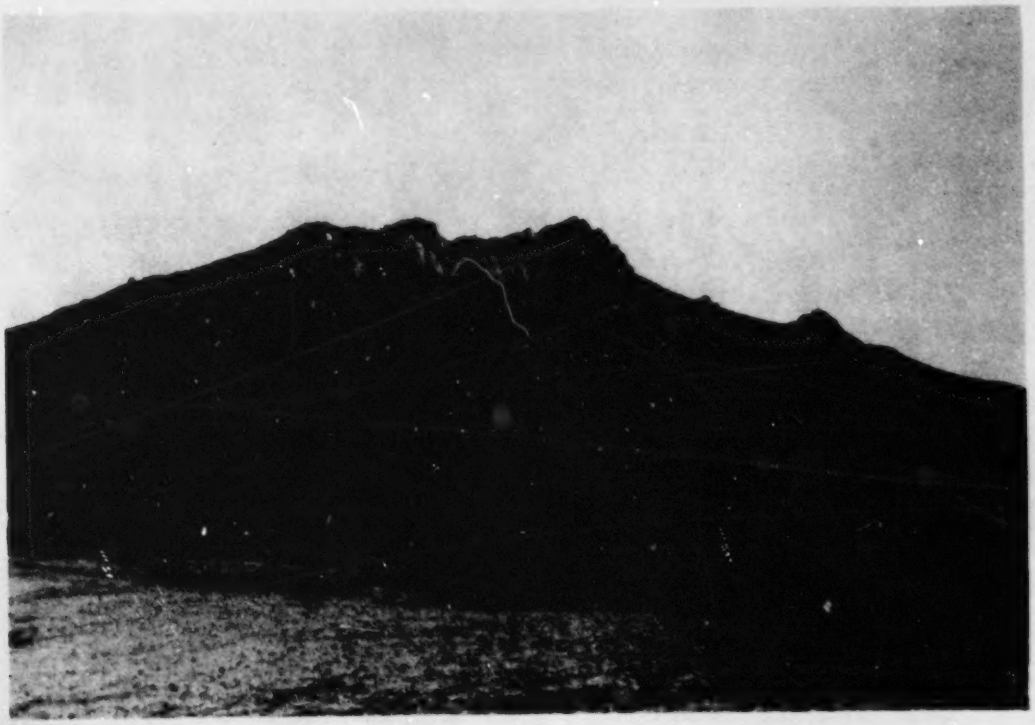
Introduction

At first glance the Point Mugu-Leo Carrillo area does not fully show its geological diversity and abundance of life. That's because the area is usually first seen from places where steep hillsides block a larger view. But get up into the hills, and the place appears very different.

Elevations in the area range from sea level to 3,000 feet. The highest peaks are touched with snow on rare occasions. Woodlands, grasslands, rocky outcroppings, and beaches each support hundreds of varieties of animals and plants. The area once was the home of a highly sophisticated Native American culture, the Chumash, for thousands of years. The Indians fed themselves from the land and the sea.

The rich coastal waters provide a habitat and food supply for many types of marine plants and animals. The undersea geology is as diverse as the geology of the land.

The Point Mugu-Leo Carrillo Area is worth exploring for a closer look. This volume will help teachers and students enjoy the area even more. The first section deals with the land and life of the area, while the second section discusses the culture of the Chumash Indians who once lived here.



Boney Mountain

Point Mugu's Beginnings

Earth movements

The area as we know it today was formed by two major forces. The first was a gradual rising caused by earth movements on the Pacific Ocean floor. The second was the periodic rise and fall of the ocean that occurred during and after the many ice ages. Most of these changes occurred in the last 20 million years. This seems like a long time to us. But when we consider the age of the earth, the formation of Point Mugu is a relatively recent event.

A recent event

If we think of the earth as one of this area's 50-year-old sycamore trees, then the time it took to form Mugu would be the same as it takes a single leaf to bud and then bloom – less than three months.

Rocks

At Point Mugu State Park you can see examples of each of the three basic types of rocks:

1. Sedimentary
2. Metamorphic (or pressurized) rock (met-a-more-fic)
3. Igneous (ig-nee-us)

Sedimentary – layers of rock

Sedimentary rock is the layered sandy or chalklike rock seen along the hillsides at the entrance to Sycamore Canyon. These rocks are the result of sand and gravel washing down from the land. This combination of rocks, mud, and sand settled to the bottom of the ocean basin. It built up in layers, until earth movements brought it to the surface where we can see it today.

Metamorphic – a solid rock

Mugu's metamorphic rock is sedimentary rock that got buried very deep and so was put under great weight from above. This combination of weight and heat from inside the earth caused the rocks to mold together. Solid rock was formed, instead of one with visible layers like sedimentary rock. You can see some metamorphic rocks along the Sycamore Canyon walls where rocks for Highway 1 were quarried.

Igneous rock is relatively recent rock, compared with sedimentary and metamorphic. It is formed deep in the earth, where the rock is hot and pliable and moves under pressure. Some igneous rock literally oozes to the surface when conditions are right. When it cools, it is quite hard and has no layers. The "White Bones" of Boney Mountain are igneous rock. Igneous rock is also found at the quarry sites in Sycamore Canyon. It is especially liked by roadbuilders because it is so hard. When placed on a roadbed it does not break up when heavy cars and trucks drive on it.

Igneous – recent rock

A layer of soil often covers these various types of rocks. Soil, or dirt, is made from rocks by the action of weather (wind and water) and plants. The weather breaks up the surface of the rock. Some small plants can then grow on the rock. When they die, they leave some of their nutrients on top of the rocks. After many years, the soil becomes rich from all the dead materials and many types of plants can then grow. Animals also contribute to soil production. Earthworms, burrowing insects, gophers, moles, and bacteria break up soil chunks.

The soil from rocks

You can see the soil layer, which usually contains lots of plant roots, at the top of many of the hillside banks of Point Mugu's hiking trails.

Point Mugu Today

Point Mugu is a very diverse park which includes four different geographical areas:

1. The coastal area, including the sandy beach and the very southern end of Sycamore Canyon, where the campground meets Highway 1.

2. The canyons, which are numerous; not all are accessible for use by a class group.

3. The high windswept ridges and peaks. Only one of these, the lookout above the hillside dune, is close enough for classes to hike to.

4. The inland valleys. Only one, the valley just west of the Sycamore Canyon campground, can be seen by students on a one-day trip.

Ecological communities

Several of these areas include one or more of the six ecological communities that are found at Point Mugu. These can be seen on a day trip to Mugu. They include: developed land, the sandy beach, the sycamore woodland, the coastal scrub, the chaparral, and the grasslands.

Inland valley

Before discussing these places let's talk about two things that specifically influence this coastal area – climate and fire.

Climate

The climate has played a large role in determining what can and cannot live at Mugu. Like most of California's coastal areas, Mugu has a Mediterranean climate, which features warm, dry summers with lots of sunshine, and mild, cool, wet winters. During the summer the fog rolls in almost daily to cool the area, but it leaves only a little bit of surface moisture. The climate is perfect for plants and animals to thrive. People have also found it ideal. The ocean keeps away chilling frosts, preventing freezing during the winter. The mild climate may have been the biggest influence in the development of a culture by the Chumash Indians of the area. The climate allowed them to spend more time on art and technology.

Mediterranean climate

Climate also was a factor in the Spanish settlement of southern California. A Mediterranean climate is common in Spain. The Ventura and Los Angeles areas were logical places for the Spanish to settle because they were so much like the Spanish homeland. These climatic qualities have attracted many people to southern California from all over the world in the last fifty years.

People settle where the climate is good

Fire

Throughout its history, Mugu has been swept by fire every few years. In the past, fire was one of the natural forces that shaped Mugu. The frequent fires would clean out heavy brush and chaparral and leave the land clear for fresh plants and grasses. These new plants supplied a rich source of food for local animals, replacing the older growth that was poor food. This new food helped animal populations grow. The Indians knew the value of fire to plant and animal life and often set fires so that more plants and animals could grow and they would have more to eat. Only recently have non-Indians appreciated the role of fire in ecological communities.

Indians knew fire's value

More fuel for fires

In the past, fires were smaller because plants never had the time to grow big and woody and dry out. In modern times, fire control has meant older wood and fuel for fires, so when a fire starts it becomes big and dangerous quickly. Such a fire occurred in the early 1970s at Mugu. It made Mugu look much as it did in older times. The land is clear of large brush, and the new bushes and grasses are growing. There are more animals now because there is more food.

Succession after fire

At Point Mugu, you can see an example of what happens after a fire. First come the grasses and wildflowers, which are annuals. These plants drop their seeds in the fall, grow in the spring, and die in the summer, and then the whole process begins again the next year. After a few years the scrub brush grows in the area. Then the hard, woody bushes we call chaparral appear. In some areas, like the Sycamore Valley floor, trees will grow. This process of change from grasses to trees is called succession.

Developed Land

Old Indian site and former trailer park

The developed land of the coast includes the two-story park headquarters building, and several roads and parking lots of an old trailer court. The trailer park was built on an old Indian site, before the state took over the area. The developed area north and upland of Highway 1 is primarily used for car camping and has been altered to accommodate motor homes, trailers, and large umbrella tents. This part of the developed land extends into the Sycamore woodlands.

Ground squirrel

In the portions of the park disturbed by people, much of the native animal and plant life has been affected by human presence. Garbage has increased the food supply for ground squirrels, which thrive in the campsite

Castor bean

Thistle

areas. Many campers who feed them in the summer don't realize they are encouraging overpopulation of these animals. When winter comes and all the campers leave, the extra food supply leaves with them. Many squirrels that grew in summer starve during the winter because their additional food supply from the garbage is gone.

Overpopulation of animals

Other living things at Mugu are also affected by the environmental changes made by people. When the land was bulldozed for roads, native plants and their seeds were scraped away. Topsoil was also removed, leaving poorer soil for new plants to grow in. Most native plants didn't like the poorer soil, but many nonnative plants thrived in it, such as the castor bean and thistles. It is an interesting fact that California's most common weeds, like the thistles, are not native but came from Europe and other countries. These weeds thrive in places disturbed by people.

Topsoil removed

Weeds

Sandy Beach

(See the Sandy Beach section of Leo Carrillo, page16, since the two beaches are very similar.)

Sycamore Woodland

Native sycamores

The sycamore woodland begins in the campground and extends up Sycamore Valley. This beautiful native grove of trees is located here because of the higher quality and depth of the soil and the higher water level found near the streambed.

In between the trees

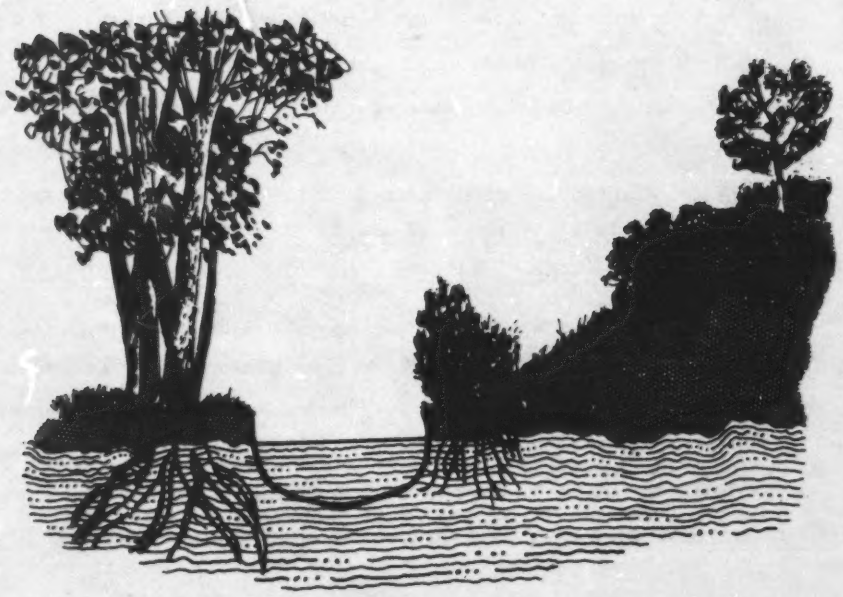
Native sycamores are almost never found by themselves, but are most often found with trees such as the walnut and the smaller scrub oaks. Unlike the scrub oaks, which grow next to each other in groves, the large sycamores need much water and light to support their size. They grow at wide distances from each other. In the spaces between the large trees grow grasses, shrubs, wild roses, elderberries, numerous varieties of wild thistle, willows, and the tobacco tree, which is really not a tree but a large, slender-stemmed shrub.

Animals of the woodland

Sycamores and the woody shrubs of the valley provide food and shelter for mammals like deer, ground squirrels, and rabbits, and birds like the towhee, jay, and hummingbird. Predators (consumers of other animals) often live in the woodlands and travel at night over more open parts of the canyon and hills in search of food. Predators include mammals like the coyote, reptiles like snakes, and birds like the white-tailed kite and the great horned owl. Reducers commonly found in the woodland are ants, termites, pill bugs, and beetles. Reducers prefer the shady and moister environment of the woodland canyon, especially near the streambed.

Great horned owl

Deer



Stream and underground water table

The streambed and nearby underground water are very important reasons why the sycamores are growing in this valley. The picture above shows the relationship between the stream, underground water (water table), and plants that grow in the Sycamore Valley. Different plants need or can tolerate different amounts of water for proper growth. Some must be closer to a stream while others must be further away. Those near a streambed, even a dry one, need and use more water than those further away. On your field trip you will notice there are many leafy, soft green plants growing around the sycamores. These use lots of water, and they get it from underground near the stream. Plants up on the walls of the canyon are hardier and need less water. They are well adapted to dry places. Their branches are hard and woody and their leaves are small so moisture will not be taken quickly by sunlight and wind.

Water table

Plants

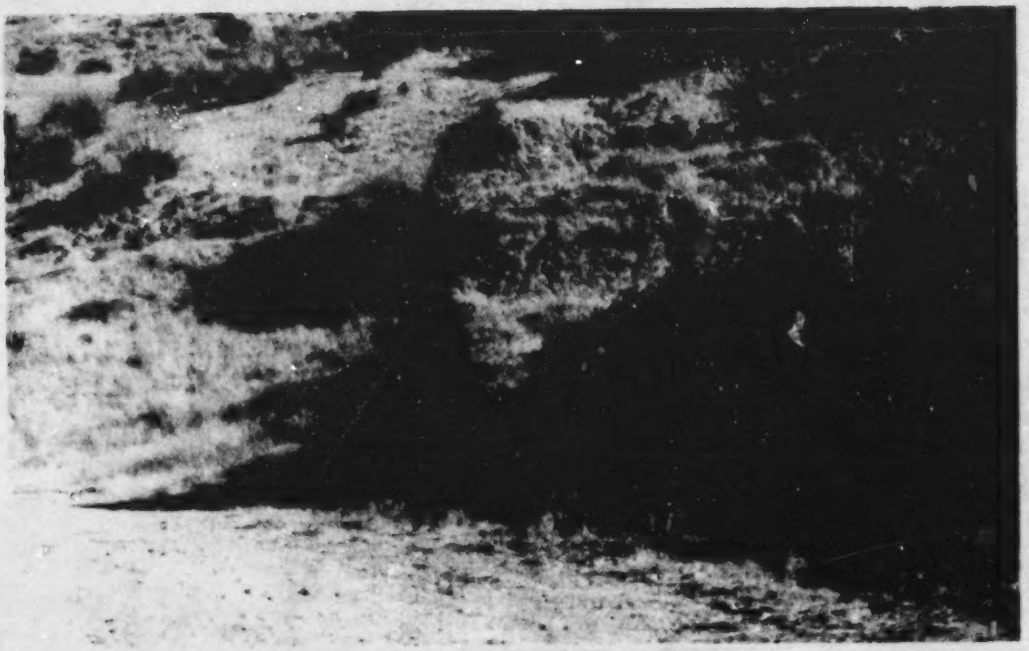
Above the floor of Sycamore Canyon, on the shady north sides of the hills, lies the low coastal scrub sometimes called soft chaparral. This bushy area is rich with many of the spices used in the kitchen, such as sage. These types of plants are called aromatics because of their smell. Other plants of this community at Mugu include purple sage, California sagebrush, prickly pear cactus, wild rye, and needle grass. Long, stiff stocks of needle grass were often used as arrow shafts by the Chumash.

Animals of coastal scrub

The coastal scrub also supports mammals like the ground squirrel, kangaroo rat, and jack rabbit as well as their predators, the fox and coyote. The brush provides hiding places for the hunted animals. The community also includes reptiles like the racer, fence lizard, and rattlesnake; seed-eating birds like the towhee and sparrow; insect-eating birds like the robin and swallow, and the insects they eat (beetles, ants, and the ringlet and monarch butterflies).

Kangaroo rat

Western Fence Lizard



Chaparral

Chaparral

Chaparral grows among the scrub on the same hills. This hardier, woodier plant community is often the final (or climax) community that develops in the Mugu area after a fire. In some areas, like Sycamore Canyon, the chaparral is followed by the growth of oaks, sycamore, tree tobacco, and others. But in many places where slopes are too steep, soil too poor, and water scarce, trees can't grow.

Two kinds of Chaparral plants

Two common chaparral plants grow side by side – the chamise and the ceanothus (used in landscaping many California homes). Ceanothus helps other plants grow because its roots trap nitrogen, an important plant food. Chamise stops other plants from growing because its leaves give off a slight poison that makes the soil below the bush unfit for plant growth. Rain can't wash the poison away. In fact, it only washes it off the chamise leaves and onto the soil quicker. Only fire can destroy the poison. In this way, fire can help some plants grow, although it will destroy others.

Fire can help plants grow

Quail

The very dense chaparral provides protection and some food for a great many animals. Chaparral is particularly good at keeping people away because it is dense and has stickers. Deer hide from people in the chaparral. Other animals frequently found there are quails, bobcats, coyotes, jays, and lizards.

The Ridge

Only one ridge is within an easy walk from the campground for a class of 30 students. This is the lookout area on the ridge just west of Sycamore Campground and east of the great hillside dune. Grass and low brush is common on the ridge, but trees and tall brush are absent. The strong, steady salt-laden wind prunes almost every plant on the ridge right down to the ground. An occasional coyote, field mouse, or other animal can be seen on the ridge. Perhaps the most common animal to be observed from the ridge is the turkey vulture, who rides the wind wave that comes up the ridge from the ocean.

Wind – salt pruning

Turkey vultures ride wind

Giant dune

The giant dune can be seen below the ridge. Its sand originally came from the Santa Cruz River near Ventura. The sand was first washed out of the mountains and into the ocean by the river, and then was pushed south by the ocean current called the California Current. Waves washed the sand onto the beach and then the wind blew it into a dune.

North of the ridge, also on the sea side, is the Point Mugu marsh and estuary owned by the U.S. Navy. This is one of the few undeveloped and productive estuaries left on the California coastline.

Inland Valleys

Mugu has several large and beautiful inland valleys. These include La Jolla Valley, Serrano Valley, and the hanging valley above Sycamore Valley. One of the most ancient cultures of North America lived in this inland valley thousand of years ago – the Oak Grove People. These people had a culture here before the Chumash.

Ancient culture

The high valley above and west of Sycamore Campground is not very far from the ridge and lookout and is close enough for a day trip by students. The small valley is typical of others in the park because it is dry, open, and very nearly flat, sort of like a wide bowl covered with grass.

Valley near Sycamore Valley

Grassland

The grassland of these valleys is made up of many different grasses – native bunch grass, wild oat, and foxtail, to name a few. Except for the native bunchgrass, most of the grasses are annuals. In the spring, they sprout green and lush from the soil left moist by the winters rains. Then they dry up and die during the summer. In the fall, the dry grasses drop their seeds, which soon sprout and send their roots into the earth. Then the cycle begins again.

Grass cycle

Grassland

Yucca

Prickley pear cactus

Buckwheat and other plants

Other plants are found in the grassland. Buckwheat, an Indian food source, can be found on the edges of the grassland where it borders scrub brush. The introduced prickly pear cactus can be found in abundance in the valley as can the native yucca, or Lord's candle as it was called by the Spanish.

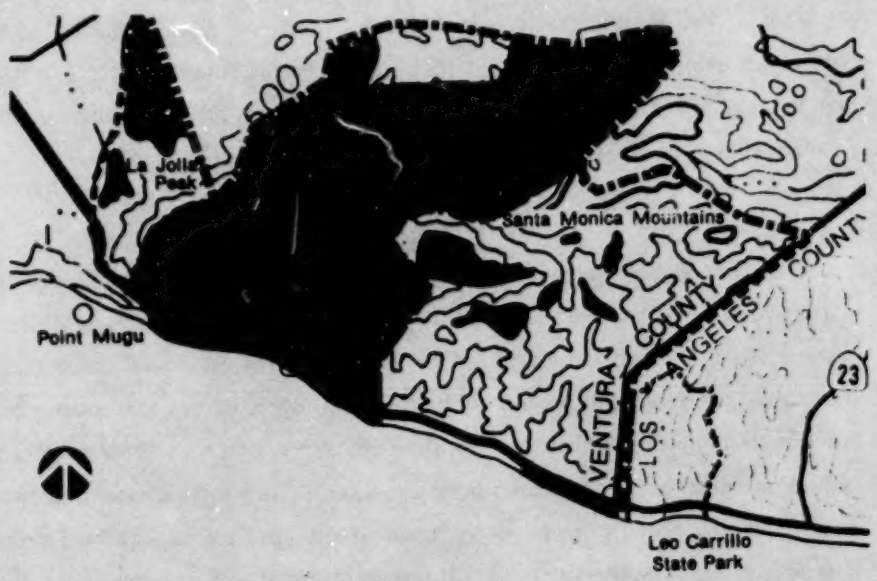
Predators

Many of the predators who live in the woodland and brush hunt in the grassland, where they can easily spot their prey, such as small rodents. Mice, rabbits, and ground squirrels are common in the grassland, because grass seeds are an important food for them.

Deer generally avoid open grass areas, because they prefer to eat from bushes and trees, and because they are not comfortable in the open where they can be easily seen. They prefer the hiding places provided by the brush and chaparral. However, they can sometimes be seen in the grassland in the early morning or early evening hours.

Leo Carrillo State Beach

Leo Carrillo State Beach is located southeast of Point Mugu. Many people are surprised to learn that Leo Carrillo State Beach is east of Mugu, and not just south. The direction of the coastline here is generally east to west. (See map).



Protected beach

The east-west direction of the coastline gives Leo Carrillo considerable protection from waves and strong winds from the north.

Vegetation

Though Leo Carrillo State Beach has many of the same types of vegetation features as Mugu (grassland, chaparral, scrub, and others) they aren't as abundant as at Mugu. Its most plentiful and interesting natural resources and ecological communities are located at the water's edge. The special qualities of the beach and the intertidal zone are why this area was made a part of the State Park System.

The following pages deal with special areas of Leo Carrillo State Beach: the sandy beach, rocky beach, and intertidal zone. For discussions of other features of this state beach that are also found at Mugu, refer to the Point Mugu section of this book.

Sandy Beach

Sand comes and goes

Leo Carrillo has a beach that is constantly changing. Every beach undergoes some changes all the time, but this one changes more than most. During the summer, the beach is very sandy. At other times, the sand is washed away, leaving large rocks exposed. The sandy beach is almost twice as large in the summer as it is in the winter. In late April and May, sand begins covering much of the flat rocky areas of the shoreline. By July the sandy area is 200 yards wide. In late September the currents change, the waves begin to get bigger, and the sand begins to wash away.

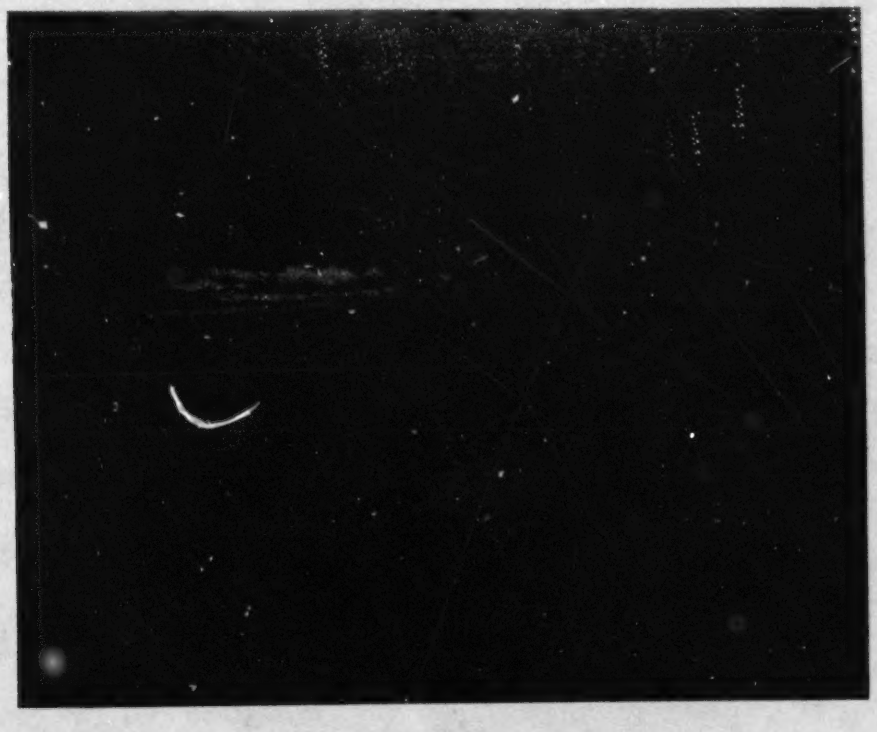
Reducers

Grunion

At first glance the white beach of summer looks bare and lifeless. A closer look always reveals chunks of old seaweed and other things washed ashore. In this decaying material lives an abundance of animals, almost all reducers. There are often small crabs (the scavengers of the seashore), sand fleas, and sometimes sea worms. Washed-up kelp is often covered with tiny white remains of hydras, microscopic animals. They often look like tiny white beehives when viewed closely. In the damp sand are sand crabs. During the fall, grunion (small fish) flop ashore and lay and fertilize eggs in the wet sand.

Sea rocket

Shore plants growing on the fringe of the sandy beach don't mind the salty ocean spray and help to anchor the sand and keep it from moving inland. These plants include Australian salt bush, verbena, tumbleweed, and sea rocket. The sea rocket is particularly well adapted to its environment. It has a two-stage seeding system. One part of the seed pod drops a seed right under the original plant, assuring that a group of plants will be living together in a clump that provides extra protection from wind, sand, and salt spray. The second stage of the seed pod shoots another seed into the air to be carried by the wind some distance away from the original plant. In this way, the sea rocket can "migrate" to more favorable places if the original area becomes poor for growing. If, for example, a large storm cuts away the beach and floods the original plants with sea water, the area will no longer be a good place for growing, but the seeds that have "rocketed" further on shore may still survive and continue the species.



This group of salt-tolerant plants, living on the edge of the sand, represent the first step in a process called natural succession. They anchor the sand. The grasses and scrub can take over and improve the soil until finally some day chaparral and trees may grow in the area.

Natural succession

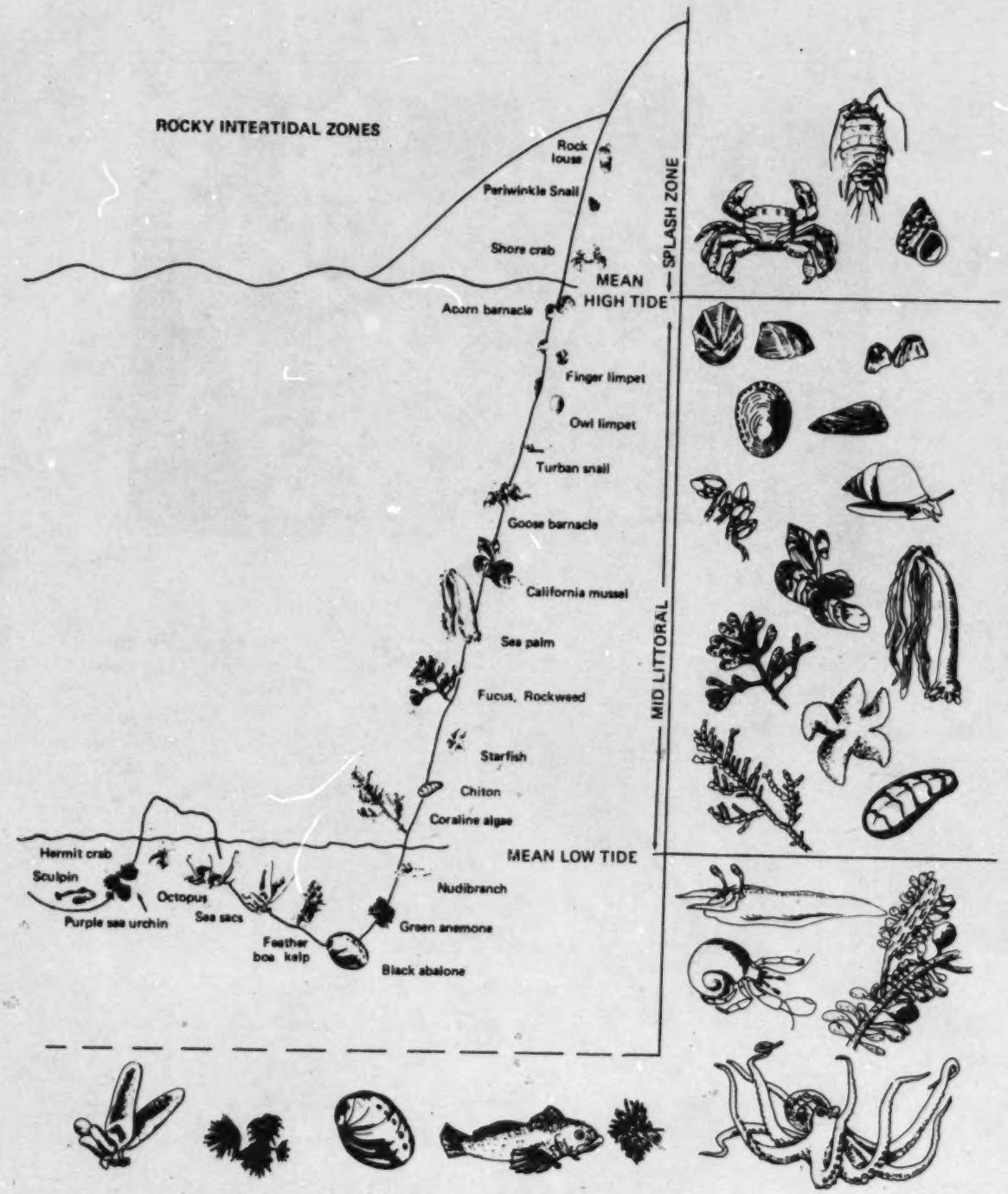
Salt-tolerant plants anchor the sand

Rocky Shoreline

Rocky Beach

The rocks of the beach to the east of the bluffs are covered by sand between late spring and the fall each year. The tidepools that can be found in this rocky beach area are covered and uncovered by sand. So life in this intertidal area not only must be adapted to the rising and falling of the tides and the pounding of the surf, but it must be adapted to the coming and going of large quantities of sand.

Adaptation


ROCKY INTERTIDAL ZONES
Rock louse
Periwinkle Snail
Shore crab
SPLASH ZONE
MEAN HIGH TIDE
Acorn barnacle
Finger limpet
Owl limpet
Turban snail
Goose barnacle
California mussel
Sea palm
Fucus, Rockweed
MID LITTORAL
Starfish
Chiton
Coraline algae
MEAN LOW TIDE
Hermit crab
Sculpin
Octopus
Sea sacs
Purple sea urchin
Feather boa kelp
Nudibranch
Green anemone
Black abalone

Life in tidepools

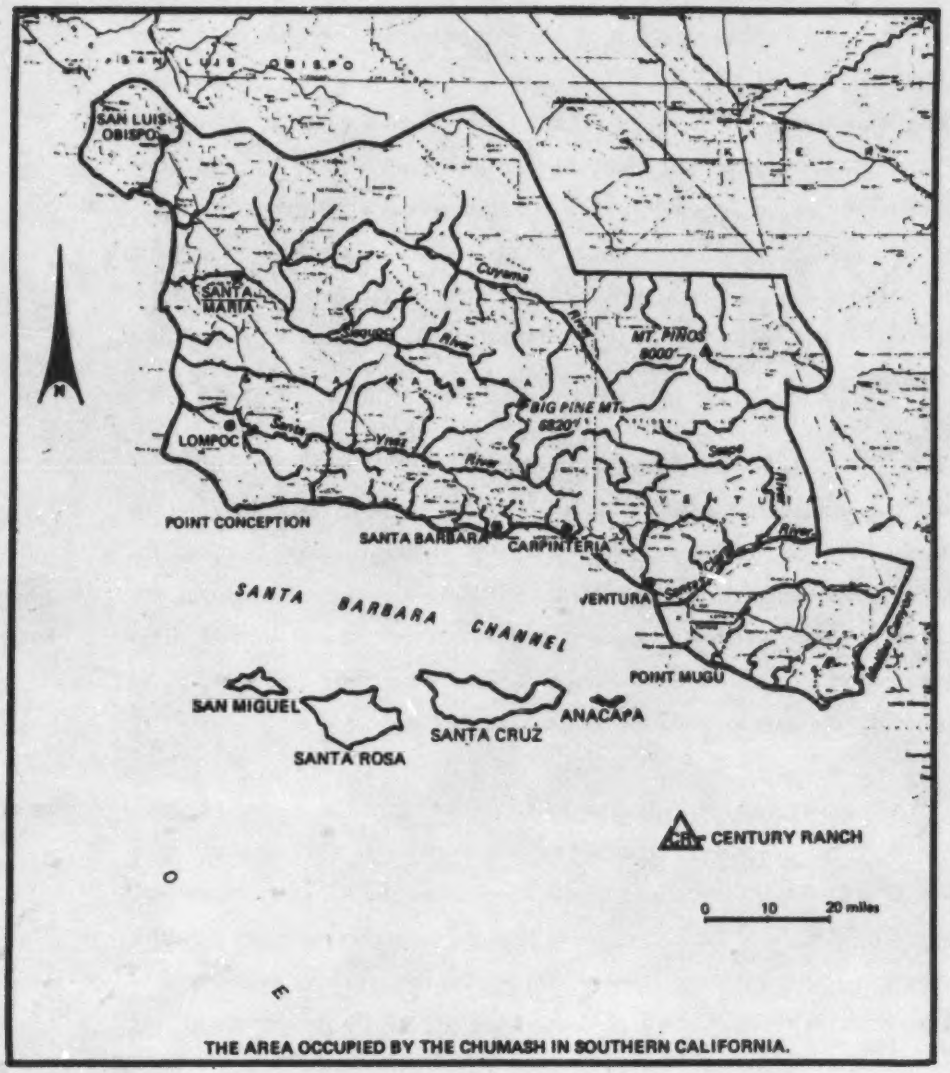
The rising and falling tide pushes the seawater up and down the rocks on the shoreline, and the ocean waves pound them hard. To survive and reproduce in this tough environment, a living thing must be very hardy. Plants and animals are plentiful in the intertidal zone because they have adapted to constant changes brought about by the tides. At high tide the water covers almost all the plants and animals. When the tide goes out, they are completely exposed. The plants and animals depend on the sea for food and other needs. The seawater level at the shoreline affects what type of life, and how much of it, will exist. More plants and animals exist on the lower rocks because they are covered up by water more often than rocks which are higher up on the beach. Very little life can survive on the rocks where there is little water.

Levels of life

As you look towards the ocean at low tide, you can see how different plants and animals live at different levels on the rocks. Nearest the land the rocks are bare. As your eyes travel toward the water, you may see barnacles, some coralline algae, then green and brown algae. Closest to the ocean you can see the sea anemone, feather boa kelp, sea sac algae, and other water-oriented organisms like the sea horse, sculpin (a fish), and octopus. An occasional crab may be seen scurrying on the rocks.

Safety first

When exploring tidepools, always keep an eye on the ocean. The only safe way to go tidepooling is to always remember you are near a changing ocean. Every wave is different from the one before, and some are bigger than others. These big waves can sweep over you and make you lose your footing. Watching the waves will give you an idea of how much energy the ocean has, and how and why plants and animals can adapt to the movement of the water.



THE AREA OCCUPIED BY THE CHUMASH IN SOUTHERN CALIFORNIA.

CHUMASH CULTURE

Who Were the Chumash?

Chumash Indians

Before the Spaniards settled in California about 200 years ago, the Chumash Indians prospered in the area we now call Point Mugu. Some 90 Indian sites of archeological importance have been identified in Point Mugu State Park.

Chumash culture was well developed long before Christ was born. Some scientists even say that ancestral Chumash were living in the nearby Morro Bay region as far back as 8,000 years ago.

Spanish arrival

At the time of the Spanish arrival, between 10,000 and 20,000 Chumash Indians inhabited the coast from Los Angeles to Morro Bay. Today only a few Chumash survive.

Hunters and gatherers

The Chumash were a hunting and gathering people. They did not grow crops or raise animals for food. Instead, they went into the countryside to pick natural plants and hunt wild animals.

Their land was one of the richest in the world and provided substantial food. Usually there was an abundance of wild animals and plants on the land, and plentiful numbers of shellfish and fish in the sea. Although winter storms sometimes stopped ocean fishing for weeks at a time, getting food was generally not too difficult.

Harmony with nature

The land was good to the Chumash and they knew it. They did little to destroy the balance of nature, and they lived in harmony with it.

Culture developed

Although the Chumash survived on subsistance gathering, they had time to develop a rich, complex culture and social life. They made works of art, developed and practiced religious rituals and ceremonies, and created a complex technology. That enabled them to trade with Indians all over California. They used shell money which became the standard medium of exchange throughout the southern part of the state.

Trade – shell money

Social Organization

Moving for food

The Chumash way of life responded to the plant cycles of the land, the change of seasons, and the movement of game. In the fall, when the hill trees produced acorns and pine nuts, whole families of Chumash traveled up to the hills to collect them. When salmon and steelhead moved up the streams to spawn, the Chumash followed them.

The Family

Male-dominant culture

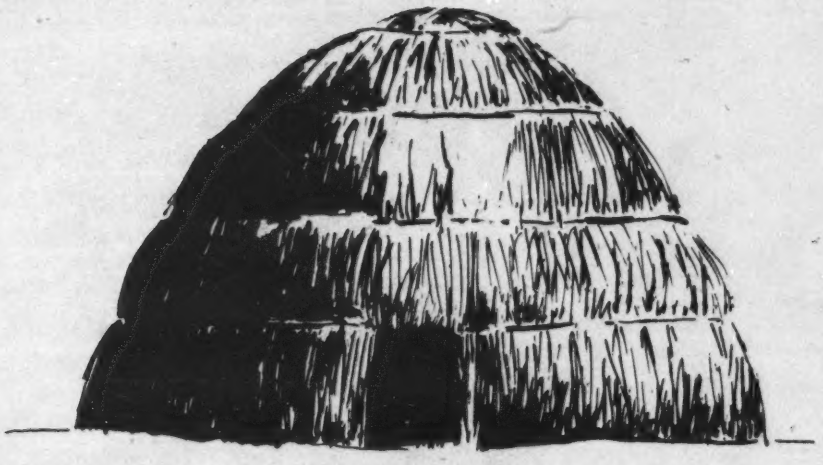
The family was an important unit for the Chumash. It determined a person's social roles, work, and even wealth. Chumash society was male-dominated or patriarchal. This means fathers passed their wealth and power to their sons, never to their wives or daughters. Similarly, men designated the tasks women were to do, strictly excluding them from men's work. As heads of families, men made most decisions.

Male and female roles

Men hunted and fished. However, if a man was a member of the artisan class, he did not hunt at all. Rather, he spent most of his time producing tools and objects of beauty which he traded for items he needed from Indians both inside and outside his own tribe.

Women's work, on the other hand, did not vary much from family to family. Most women did household chores and gathered plant foods. Such a division of labor is frequently found among hunting and gathering people.

Men hunted



Chumash dwelling

Social Classes

A man's class was determined by the chance of birth. There were three classes in the Chumash social structure: nobles, hunters and artisans, and shaman.

Noble Class: The noble class was made up of well-to-do families that held important positions in the village. The village chief was always a noble and, of course, the most important one. He made most crucial decisions affecting the village. Helping him was his assistant, a man who quite often was knowledgeable about astronomy. This man would observe the star formations, seeking signs for guidance about social life, religion, hunting, and gathering plants. He would then advise the chief about favorable times for these activities. The nobles of a village were usually relatives of the chief and his assistant.

Nobles

Chief

Astronomer

Hunters and Artisans: The hunters and artisans were the bulk of the tribe and formed the class below the nobles. They were the producers of the village, making the tools and works of art or bringing in the food. In the hunting and artisan classes a man's wealth and importance depended on how hard he worked, and how fortunate he was. Within this class there were both rich and poor.

Success depended on hard work

The artisans formed cooperative groups similar to fraternitites or unions, which gave them more social and economic strength.

Witch-priests

Shaman: The shaman class served as the religious leaders for the villages. Most Chumash believed that the shaman had strong powers they used for good or evil, depending on how they felt. Thus, in the eyes of the Indians, the shaman were dangerous and unpredictable. Therefore, the ordinary Chumash avoided them and left them outside most of their daily activities. During times of hardship or dry spells, however, the Chumash went to the shaman for help because they believed they could speak to the gods who controlled everything. The Chumash truly believed in magic and the power of the gods. In times of crisis they honored and sought those who were in contact with such magic and power.

Magic powers

Religion

Religion and nature

Chumash religion is closely related to the cycles of the natural world. These Indians revered three natural elements – earth, air, and water. They saw the rainbow as a reflection of these elements in the sky. They felt they must live in harmony with these elements if they were to survive.

Spirits

The Chumash also believed their world was full of spirits that would either help or destroy them. These spirits were the lost or wandering souls of men and animals, and the Chumash were constantly alert not to annoy or make enemies of them. Probably because they saw nature as a unified whole, they also believed that natural objects, locations, and events had spirits.

Shaman

The spirits were linked to the harmony and discord in nature between ma and animals. It is interesting to note that several animals we see as vicious or mean today were thought by the Indians to have good spirits. The killer whale was one, and so was the swordfish. Both of these were thought to deliberately help man by driving fish and seals toward land so the Chumash could hunt them.

Killer whale

Swordfish

To the Chumash all animal life was sacred, and man was no better than other animals. That is why the Chumash believed all animals have souls, and thus spirits.

All life sacred

Myths

Chumash myths were accounts of the beginning of the world and the creation of man, the seasons, and such natural phenomena as thunder and lightning. The work of spirits and gods was the explanation in nearly every myth for the way things are. Today science tries to explain such phenomena in terms of the workings of nature itself.

Myths explain the unknown

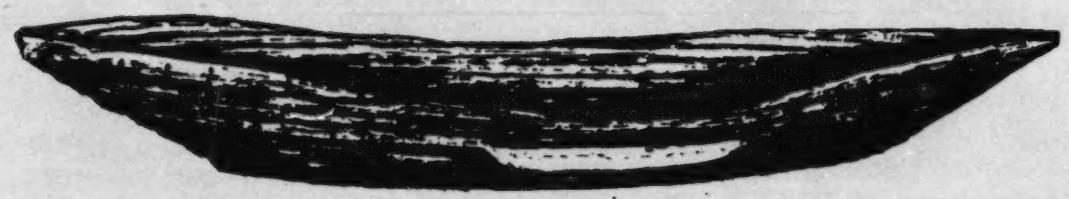
Gods

Three main gods inhabited the Chumash world – the Sun, the Coyote, and a birdlike creature that watched over everything. The Sun was the most powerful of the three and the source of all life. He could be good or bad to humans, depending on how he felt. Coyote, on the other hand, was a special friend to man. He was the god who had given man fire. The birdlike watcher was very powerful, but did very little besides observing the world and acting as a referee between the Sun and Coyote.

Three gods

To the Chumash the entire world was a sacred place. Magical, powerful, beautiful things abounded. They respected every natural thing, especially other living things. They disturbed very little, taking what they needed for survival and little else.

Relationship to nature



Chumash plank canoe

Technology

Of the many Indian cultures in California, the Chumash was one of the most technologically advanced. They developed sophisticated methods of fishing and hunting, used fire, built communal shelters, and made clothing. They also developed art work to a high degree.

Canoes

Structure of canoes

The most notable achievement of the Chumash was the construction of seagoing canoes. They built them by lashing together planks made from driftwood or local trees. The canoe had no cross braces and only one seat in its center. The spaces between the planks were filled with a gummy substance made from local tar and grass. The final product was a fine seaworthy vessel. In these canoes the Chumash ventured far out to sea, sometimes thirty or more miles. Thanks to this special canoe, some of the Chumash paddled to the islands off the coast of Santa Barbara and settled there. Going back and forth among these islands, the Chumash built up a lively trade.

Trade

Utensils

Cooking pots

The islands were one of the few places where the Chumash could get soapstone (steatite), which they considered both beautiful and useful. The islanders dug out the soapstone and used it for making tools, utensils, and art objects. They traded these items, and the soapstone itself, for much-needed food.

Baskets

The Chumash skillfully carved the steatite to make cooking pots. They polished the outsides to a high shine and smoothness, and finished the entire pot with great care. The pots were such fine containers that the use of clay for making pots was never developed, as it was in many other Indian cultures. Many of these stone pots have been found and are on display today at the Museum of Natural History in Santa Barbara. The Chumash also wove baskets from grasses. These were among the finest made by California Indians and were quite useful as well as beautiful. Some baskets were coated with tar on the inside so they could hold water, and were used as canteens.

Art Objects

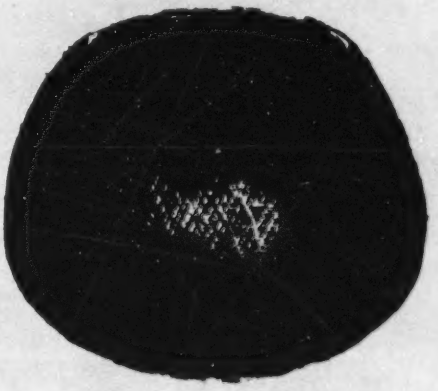
Art materials

The Chumash artisans used bone, wood, and soapstone to make their art objects. They used natural earth colors in their rock paintings.

Tools

Hunting tools

The mainland Chumash used wood, shell, bone, and stone to make their hunting tools. Fishhooks used in the coastal streams were made from shells. Spears, bows, and arrows were fashioned from wood. Arrowheads were made of stone.



Steatite bowl

No agriculture

All their tools and utensils were typical of hunting and gathering Indians everywhere in North America. They used no tools to plant crops or to cultivate them. They developed no agricultural technology because it was not needed. The Chumash did not change the land as much as our culture does. On the contrary, they more often changed and adapted themselves to the land. Their life-style, their tools, their religion, and their art all reflected their harmony with, and respect for, their natural world.